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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/740,284	12/19/2000	Fernando Carlos Pereira	2000-0102	7217

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EXAMINER

HARPER, V PAUL

ART UNIT	PAPER NUMBER
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2654

DATE MAILED: 11/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/740,284	<b>Applicant(s)</b> PEREIRA ET AL.	
	<b>Examiner</b> V. Paul Harper	<b>Art Unit</b> 2654	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 02 September 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                                                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Singhal et al. ("AT&T at TREC-7" in Proceedings of the Seventh Text Retrieval Conference (TREC-7) ed Voorhees et al., July 1999), hereinafter referred to as Singhal, in view of Hutson (U.S. Patent 5,559,940), hereinafter referred to as Hutson

Regarding **claims 1 and 10**, Singhal teaches a method for doing spoken document retrieval that includes the following steps:

- accessing a database of vectors of automatic transcriptions of documents (§3.1, p. 242, §3, "Speech Recognizer" generated a recognizer transcript, "Retrieval System" using word lattices for documents) ;
- changing weights of terms in the truncated vectors to weights associated with the vectors before the vectors were truncated, thereby creating truncated, weighted vectors (p. 247, ¶2, §3.3 re-weighting of document vectors); and

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- adding to the truncated, weighted vectors any terms which were not recognized by the recognizer (p. 244, add new words).

Singhal teaches the expansion of documents by only words present in the word lattice generated by the recognizer (p. 244, i.e., only adding words that are recognized by the recognizer), but Singhal does not specifically teach “truncating the vectors by removing all terms in the vectors that are not recognized by the recognizer, thereby creating truncated vectors.” However, the examiner contends that this concept was well known in the art, as taught by Hutson.

In the same field of endeavor, Hutson discloses a method for real-time information analysis of textual material. Hutson further discloses the suppression or removal of unwanted words (col. 2, lines 12-20; col. 4, lines 61-67, where in this case, the unwanted words [worthless information] are those not recognized by the recognizer).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Singhal by specifically providing the features as taught by Hutson, because a smaller database can be more efficiently searched if worthless information is removed (Hutson, col. 1, lines 47-65) including (only) words also proposed by the speech recognizer (Singhal, p. 244, §Lattice Based Document Expansion, ¶15).

Regarding **claims 2 and 11**, Singhal in view of Hutson teaches everything claimed, as applied above (see claims 1, and 10). In addition, Singhal teaches, “the

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step of comparing from the truncated vectors a retrieval of documents from the original vectors, thereby measuring effect of deletions from the original vectors on retrieval accuracy" (pp. 245, 246, Tables 4-6, §3.3, evaluated constrained document expansion allowing only terms from the recognizers).

Regarding **claims 3 and 12**, Singhal in view of Hutson teaches everything claimed, as applied above (see claims 1 and 10). In addition, Singhal teaches "the step of measuring incremental loss in retrieval effectiveness due to insertion of the terms not recognized by the recognizer (p. 245, Table 4, Expanded Docs, p. 248, Figure 1, % loss from human transcriptions).

Regarding **claims 4 and 13**, Singhal in view of Hutson teaches everything claimed, as applied above (see claims 3 and 12). In addition, Singhal teaches "the step of determining final retrieval effectiveness of the speech retrieval document using automatic transcriptions" (pp. 245-246, "Results and Analysis," Table 6).

Regarding **claims 5 and 14**, Singhal in view of Hutson teaches everything claimed, as applied above (see claims 4 and 13). In addition, Singhal teaches "the accessing step comprises the step of querying the database with the speech retrieval document to retrieve documents that are similar to each other (e.g. p. 243, §3.2, retrieval).

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Regarding **claims 6 and 15**, Singhal in view of Hutson teaches everything claimed, as applied above (see claims 5 and 14). In addition, Singhal teaches “the querying step comprises retrieving a predetermined number of documents which are most similar to the speech retrieval document (p. 247, ¶1, retrieving the ten most similar documents).

Regarding **claims 7 and 16**, Singhal in view of Hutson teaches everything claimed, as applied above (see claims 6 and 15). In addition, Singhal teaches “the predetermined number is ten” (p. 247, ¶1, retrieving the ten most similar documents).

Regarding **claims 8 and 17**, Singhal in view of Hutson teaches everything claimed, as applied above (see claims 6 and 15). In addition, Singhal teaches “the truncating step comprises the step of modifying the original vectors according to a weighting function to produce the truncated vectors” (p. 247, see ¶ 2. for the document weight calculation).

Regarding **claim 9**, Singhal in view of Hutson teaches the use of the indicated formula (p. 247, ¶2 see formula).

Regarding **claim 18**, this claim has limitations similar to claims 1 and 10 and is rejected for the same reasons.

Regarding **claim 19**, this claim has limitations similar to claims 1 and 10 and is rejected for the same reasons.

Regarding **claim 20**, this claim has limitations similar to claims 1 and 10 and is rejected for the same reasons.

### ***Response to Arguments***

2. Applicant's arguments filed 9/02/05 have been fully considered but they are not persuasive.

3. Applicant asserts on page 10:

Regarding (1), Applicants respectfully submit that since speech recognition is only referenced once and in passing in Hutson, and further since Hutson assumes an error-free text document, that one of skill in the art would not have sufficient motivation to incorporate Hutson into Singhal. Singhal's focus in the spoken document retrieval analysis is to improve upon the errors in speech recognition. If Singhal was modified "by specifically providing the features as taught by Hutson", it would not provide the benefits set forth by the Examiner. The Examiner stated that the reason one of skill in the art would blend these references is for the purpose of reducing the size of the database for a more efficient search (citing Hutson, Col. 1, lines 47 - 57). However, in the Singhal paper, Section 3.2, second paragraph, they state that in the study, the NA News Corpus was utilized but that some parameters had to be changed to deal with the small size of the speech database. In other words, the Examiner's stated purpose is to use Hutson's teachings to reduce the size of the database in Singhal - but Singhal states that their study was already done on a small sized database. Accordingly, these references should not be combined because the context of each of these references differ and teach away from any such combination and further because there is no reason or motivation for one of skill in the art to utilize Hutson in Singhal for the purpose of reducing the database size where the database size is already small.

Hutson discloses an invention for rapid computer-based analysis and information retrieval of textual data stored in computer files (col. 1, lines 19-21), where the files can result from speech recognition of acoustic information or optical character recognition of scanned textual material (col. 2, lines 7-12) with certain words in these files being suppressed (col. 2, lines 15-20). Hutson nowhere states that the speech recognition process is error free. On the contrary, the examiner maintains that it is well known that both speech recognition of optical character recognition or error prone processes, and Hutson includes the ability to "suppress certain words" as a way to address the problem of being "inundated with large amounts of ... worthless information" (col. 1, lines 64 through col. 2, lines 4). To further support this, Singhal teaches that a recognizer "adds some spurious words" (p. 244, 1<sup>st</sup> ¶ in section labeled "Lattice Based Document Expansion."). The teachings of Hutson can improve a speech retrieval process by removing terms not recognized by the recognizer with the resulting reduction in database size improving the efficiency of the search. This size reduction is especially relevant since Singhal's search is performed over a large collection (p. 243, §3.2, ¶1, "we use the NA New corpus .. as the large collection ...").

4. Applicant asserts on page 11:

Regarding the second point (2) above, Even if Hutson's teachings were incorporated into Singhal, each of claim 's limitations would not be taught. As discussed above, Hutson does not teach truncating the vectors by removing all terms in the vectors that are not recognized by the recognizer. This is because Hutson assumes perfect speech recognition



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and because Hutson teaches a SVD analysis on the text file which is enhances lexical, semantic and/or textual constructs - none of which relate to terms not recognized by a speech recognizer.

See §3, above. Hutson teaches the suppression and/or removal (truncation) of words or features (col. 2, lines 15-18; col. 4, lines 61-66) and worthless information (col. 1, line 65 through col. 2, line 4), and the desirability of keeping the search space as small as possible (col.1, lines 50-57). Thus, during the speech retrieval Singhal in view of Hutson teach "truncating the vectors by removing all terms in the vectors not recognized by the recognizer" (i.e, suppress worthless information during the retrieval process).

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to V. Paul Harper whose telephone number is (571) 272-7605. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richemond Dorvil can be reached on (571) 272-7602. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

5/27/2005

V. Paul Harper  
Patent Examiner  
Art Unit 2654



**RICHEMOND DORVIL**  
**SUPERVISORY PATENT EXAMINER**